

REMARKS

In the Official Action dated June 29, 2006, claims 4, 6, 21, 23 and 28-30, previously indicated as allowable, were rejected on various combinations of *Von Holst et al.* (U.S. Patent 5,487,626), Tool and Manufacturing Engineers Handbook (TMEH), *McFarlane et al.* (U.S. Patent 1,395,198) and *Chang et al.* (U.S. Patent 6,235,128). It is respectfully submitted that these rejections are inapposite and should be withdrawn.

In pertinent part, the prior art shows threading taps of various types (*McFarlane et al.*, *Van Holst et al.*) with specific screw thread sizes, geometries, etc., (TMEH). *Chang et al.* discloses a multi-step process of forming a hard surface on a steel article (threading taps are not mentioned) which involves carbonitriding the article, tempering and then nitriding the tempered article.

Von Holst et al. also discloses that threading taps are commonly treated by steam treatment but the improvement of that patent is to use a specific steel material and then coat the threading tap with a PVD or CVD coating, preferably TiN, Ti(C,N) and/or (Ti,Al)N.

McFarlane does not disclose anything about coatings and/or steam tempering while TEMH in the paragraph bridging pages 12-86 and 12-88 (page 12-87 is a table) mentions treatment for taps in a superheated steam atmosphere, nitriding, other treatments or a titanium nitride coating.

The present invention is based on the finding that superior results in the threading of a variety of different materials can be obtained from a tap having a combination of surface treatments in specific areas. That is, a threading tap where the threads, teeth and chamfers are coated with a PVD coating while the flutes are steam tempered. By using uncoated but steam tempered flutes, narrower and more regular chips are produced as compared to fully coated taps. Also, by steam tempering the flutes, their wear resistance is improved as

compared to either coated or non-steam tempered flutes. Coating the threading portion of the threading tap extends the useful life of the threads.

This unique combination of PVD coated threading portion and uncoated but steam tempered flutes is different from and not suggested by the prior art. At best, that prior discloses a threading tap which is either completely coated or completely steam tempered. No prior art suggest the particularly claimed threading tap defined herein (nor the method of making it). Thus, the rejections are improper and should be withdrawn.

With respect to the method please note that steps of PVD coating and steam tempering are interchangeable sequentially. That is, as disclosed herein, either the entire tap can be steam tempered, the threading portion then ground and the PVD coating applied only to the threading portion or the entire threading tap can be coated by PVD, the flute portions being ground and then the flutes (only) steam tempered. A PVD coating does not steam temper and a steam tempered surface does not accept a PVD coating. Regardless, it is the combination of specific surface treatments at specific portions of the threading tap which distinguish the presently claimed invention from the prior art.

Withdrawal of the grounds of rejection and early allowance of claims 4, 6, 21, 23, and 28-38 is earnestly solicited.

Should any questions arise in connection with this application, or should the Examiner believe a telephone conference would be helpful in resolving any remaining issues pertaining to this application, it is respectfully requested that the undersigned be contacted at the number indicated below.

EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required,

including any required extension of time fees, or credit any overpayment to Deposit Account 50-0573. This paragraph is intended to be a CONSTRUCTIVE PETITION FOR EXTENSION OF TIME in accordance with 37 C.F.R. § 1.136(a)(3).

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Respectfully Submitted,

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